What is claimed is:

1. A method of allocating to communication units transmit time slots in a communication channel that implements a pseudo-token, ping-pong channel access protocol wherein a receiving unit obtains the right to transmit on the channel with the receipt of a data packet, comprising the steps of:

   allocating reserved time slots to communication units based on QoS requirements associated with the communication units, wherein the pseudo-token is automatically assigned to a communication unit during its reserved time slot;

   assigning priority levels to communication units transmitting on the communication channel; and

   interrupting the pseudo-token based channel access scheme when a communication unit's reserved time slot is overridden by a transmission from a higher priority communication unit.

2. A method according to claim 1, wherein the step of allocating reserved time slots to communication units further comprises the step of:

   receiving, at a master unit, an access request from a slave unit, wherein the access request includes QoS parameters requested by the slave unit.

3. A method according to claim 1, wherein the step of allocating reserved time slots to communication units further comprises the step of:

   allocating a maximum packet size to communication units based on QoS requests from the communication units.

4. A method according to claim 1, wherein the step of allocating reserved time slots to communication units further comprises the step of:

assigning time offsets between the reserved time slots allocated to communication units.

5. A method according to claim 1, wherein the priority level assigned to a communication unit is based on the QoS requested by the communication units.

6. A method according to claim 1, wherein the step of interrupting the pseudo-token based channel access scheme comprises passing the virtual token to the communication unit which had its transmission time slot overridden.

7. A method according to claim 1, wherein a communication unit forfeits its right to transmit on the communication channel when its reserved time slot is overridden by a transmission from a higher priority communication unit.

8. A communication system, comprising:

a plurality of communication units, the communication units having a transmitter for transmitting data packets on a time slotted communication channel and a receiver for receiving data packets on the time slotted communication channel, wherein one of the communications units acts as a master communication unit for implementing a pseudo-token, ping-pong channel access protocol wherein a receiving unit obtains the right to transmit on the channel with the receipt of a data packet;

the master communication unit including:

a module for allocating reserved time slots to at least one of the communication units based on QoS requirements associated with the communication units, wherein the pseudo-token is automatically assigned to a communication unit during its reserved time slot;

a module for assigning priority levels to communication units transmitting on the communication channel; and

a module for interrupting the token-based channel access scheme when a communication unit's transmission time slot is overridden by a transmission from a higher priority communication unit.

9.   A communication system according to claim 8, wherein the master communication unit assigns reserved time slots based on QoS parameters requested by a slave communication unit.

10.   A communication system according to claim 8, wherein the master communication unit assigns a maximum packet size to slave communication units based on QoS requests from the slave communication units.

11.   A communication system according to claim 8, wherein the master communication unit assigns time offsets between the reserved time slots allocated to communication units.

12.   A communication system according to claim 8, wherein the master communication unit assigns priority levels to slave communication units based on the QoS requested by the slave communication units.

13.   A communication system according to claim 8, wherein the master unit interrupts the virtual token-based channel access scheme when a communication unit's transmission time slot is overridden by a transmission from a higher priority communication unit.

14.   A communication system according to claim 13, wherein the master unit passes the virtual token to the communication unit which had its transmission time slot overridden.

5   15.   A communication system according to claim 8, wherein a communication unit forfeits its right to transmit on the communication channel when its reserved time slot is overridden by a transmission from a higher priority communication unit.

16.   A communication device for communicating over a communication channel
10   that implements a pseudo-token based access scheme wherein a receiving communication device obtains the right to transmit on the channel with the receipt of a data packet, comprising:

        a transmitter for transmitting data packets directly to other communication devices on a time-slotted communication channel;

15   a receiver for receiving data packets directly from other communication devices on the time-slotted communication channel; and

        a controller for controlling access to the time-slotted communication channel during a communication session with another communication device wherein the controller includes:

20   a transmission time slot allocation module for allocating reserved time slots to at least one communication device based on QoS requirements associated with the communication devices, wherein the pseudo-token is automatically assigned to a communication unit during its reserved time slot;

                a priority assignment module for assigning priority levels to
25   communication devices transmitting on the communication channel; and

                a token assignment module for interrupting the token-based channel access scheme when a communication device's transmission time slot is overridden

by a transmission from a higher priority communication device.

17.   A communication device according to claim 16, wherein the transmission time slot allocation module allocates reserved time slots based on QoS parameters requested by a slave communication unit.

18.   A communication device according to claim 16, wherein the controller assigns a maximum packet size to communication devices based on QoS requests from the communication devices.

19.   A communication device according to claim 16, wherein the transmission time slot allocation module assigns time offsets between the reserved time slots allocated to communication devices.

20.   A communication device according to claim 16, wherein the priority assignment module assigns priority levels to communication devices based on the QoS requested by the communication devices.

21.   A communication device according to claim 16, wherein the token assignment module interrupts the pseudo-token based channel access scheme when a communication device's assigned transmission time slot is overridden by a transmission from a higher priority communication unit.

22.   A communication device according to claim 21, wherein the token assignment module passes the pseudo-token to the communication unit which had its transmission time slot overridden.

23.   A communication device according to claim 21, wherein the token assignment module forfeits a communication unit's right to transmit on the communication channel when its reserved time slot is overridden by a transmission from a higher priority communication unit.

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24.   A computer program product for controlling communications over a communication channel that implements a pseudo-token based access scheme wherein a receiving communication device obtains the right to transmit on the channel with the receipt of a data packet, comprising:

10   computer-readable storage medium having computer-readable program code means embodied in said medium, said computer-readable program code means including:

        computer-readable program code means for allocating reserved time slots to at least one communication device based on QoS requirements associated

15 with the communication devices, wherein the pseudo-token is automatically assigned to a communication unit during its reserved time slot;

        computer-readable program code means for assigning priority levels to communication devices transmitting on the communication channel; and

        computer-readable program code means for interrupting the token-

20 based channel access scheme when a communication device's transmission time slot is overridden by a transmission from a higher priority communication device.

25.   A computer program product according to claim 24, wherein the transmission time slot allocation module allocates reserved time slots based on QoS

25 parameters requested by a slave communication unit.

26.   A computer program product according to claim 24, wherein the controller

assigns a maximum packet size to communication devices based on QoS requests from the communication devices.

27.   A computer program product according to claim 24, wherein the transmission time slot allocation module assigns time offsets between the reserved time slots allocated to communication devices.

28.   A computer program product according to claim 24, wherein the priority assignment module assigns priority levels to communication devices based on the QoS requested by the communication devices.

29.   A computer program product according to claim 24, wherein the token assignment module interrupts the pseudo-token based channel access scheme when a communication device's assigned transmission time slot is overridden by a transmission from a higher priority communication unit.

30.   A computer program product according to claim 29, wherein the token assignment module passes the pseudo-token to the communication unit which had its transmission time slot overridden.

31.   A computer program product according to claim 30, wherein the token assignment module forfeits a communication unit's right to transmit on the communication channel when its reserved time slot is overridden by a transmission from a higher priority communication unit.